

# The Army's Green Warriors

## Environmental Considerations in Contingency Operations

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**E**nvironmental issues can play a pivotal role in U.S. Army contingency operations, as recent experiences in Iraq, Afghanistan, and the Balkans demonstrate. By effectively managing environmental issues during deployments, Army units and commanders can gain tactical and strategic benefits that can extend from combat into the post-conflict phase of operations. This is the main finding of the RAND Corporation report *Green Warriors: Environmental Considerations for Army Contingency Operations from Planning Through Post-Conflict*, by David E. Mosher, Beth Lachman, et al.

Because environmental problems pose risks to the health, safety, and security of troops, they can influence combat operations. But the effect of environmental issues goes well beyond that. In most contingencies over the past two decades, U.S. forces have remained in the theater for much longer than anticipated, getting deeply involved in such non-combat activities as stabilization, reconstruction, and nation-building. Environmental issues become even more important during such protracted engagements, not only because of the effect they have on day-to-day operations at base camps, but also because of the significant role they can play in achieving U.S. national objectives. Indeed, the longer the mission and more extended the post-conflict operations, the more important the environmental issues tend to become, and the more they can affect mission outcomes and operation costs.

However, because they compete with other warfighting concerns for attention, investment, and manpower, environmental considerations rarely receive high priority in contingency operations. The authors recommend that Army units and commanders better balance them with other requirements. The report looks at the many ways that issues related to the environment can affect combat and post-conflict operations. It presents

### Abstract

The U.S. Army has much to gain by carefully integrating environmental considerations into operational concepts, plans, and procedures during contingency operations. Evidence from Iraq, Afghanistan, and other conflicts suggests that a shift to a comprehensive approach to environmental considerations that encompasses policy, culture, planning, training, and investment—and emphasizes sustainability—can boost overall mission success. This will be particularly important during stability operations and reconstruction.

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areas for improvement and lays out a comprehensive and systematic approach the Army could take to manage the environment effectively during contingencies.

### The Need for a Broad View of Environmental Considerations

When Army units and commanders take too narrow a view of what falls within the scope of "environmental considerations," they may limit the opportunities available to shape mission outcomes positively. Environmental considerations encompass anything related to the environment that either affects the planning and execution of military operations, positively or negatively, or is affected by those operations. They include (but are not limited to) environmental conditions affecting soldier health; clean water, sewage, and other environmentally related infrastructures; compliance with environmental laws; pollution prevention and environmental management; protection of historical and cultural sites; sustainability; and management of agricultural and natural resources.

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The relationship between the Army and the environment is a two-way street. On the one hand, soldiers and operations affect the environment; on the other, the environment affects soldiers and operations. If not planned for and managed well, the presence of soldiers in a base camp can degrade the environment. But environmental degradation can also adversely affect the health and safety of soldiers. Similarly, a program to recycle motor oil can reduce the amount of hazardous waste that is generated and lower the demand for fuel and oil deliveries, which, in turn, can lower costs and the risks to soldiers.

## **How Environmental Considerations Can Affect Combat Operations**

The combat phase of a contingency is often short, with commanders intently focused on achieving tactical objectives. Healthy, fit fighting forces and efficient logistics are vital to this effort, as is securing key resources. Environmental issues can affect all of these.

**Effects on soldiers.** Often the most direct effect of the environment is on soldiers. Endemic diseases can severely undermine the health of troops. Unclean water, polluted air, and poor sanitation can cause debilitating shorter-term illness and can also sometimes cause longer-term health problems, such as increased cancer risks. Other risk factors include uncontrolled insect or animal vectors and legacy pollution from earlier industrial contamination. Toxic substances are likewise a danger to troops, whether through accidental exposure or deliberate action by adversaries.

**Effects on logistics.** Operations that need less fuel, water, and other resources and produce less waste will reduce the logistics burden and free up logistics assets for other important tasks. When the environment is not properly managed at base camps, it can place significant and unnecessary demands on logistics systems that should be focused on other types of support.

**Difficulties securing key resources.** Adversaries can destroy dams to block avenues of approach, or they can create hazardous conditions for U.S. soldiers and affect visibility by setting oil wells on fire. Failure to secure such resources can compromise tactical success.

Each contingency is unique. Different environmental factors will come into play during any combat operation. By being aware of the range of possibilities, Army units and commanders can anticipate which issues they will confront and can plan for managing them. By doing so, they can protect soldier health and safety; safeguard unit readiness, efficiency, and effectiveness; and prevent interruptions to combat operations.

Perhaps as important, planners and commanders can also take steps in the combat phase to preserve environmen-

tal infrastructures and resources that will be important for stability and reconstruction after combat operations end. But understanding what to preserve will require them to take a strategic view of the operations, including desired end states.

## **How Environmental Considerations Can Affect Stability Operations, Reconstruction, and Nation-Building**

Today's typical contingency operation has a post-conflict phase that can last from months to many years. Increasingly, the Army is being called on to carry out functions historically performed by other U.S. government agencies, NGOs, or international organizations. This requires keeping U.S. ground forces in a region for extended periods, often much longer than anticipated. In response to this trend, the Department of Defense policy since 2005 has been to consider stability and reconstruction in contingencies as important as combat operations and to include them in planning at all levels. Consequently, the scope of the Army's mission has expanded dramatically. In this context, environmental considerations can have important tactical, operational, and strategic implications.

**Effects on soldiers.** The environmental risks to troops characteristic of short-term operations increase the longer soldiers remain exposed to them. If insurgents can target hazardous wastes that build up in storage areas at base camps, soldier health is also endangered. In addition, morale can fall when soldiers perceive that the Army is not "doing the right thing" with regard to the environment or their health.

**Effects on relations with the local populace and reconstruction efforts.** Environmentally related reconstruction projects and good environmental practices—including solutions to legacy environmental problems—can earn invaluable support from a local population. According to one U.S. commander in Baghdad, efforts to provide clean water and electricity, manage sewage and trash, and preserve natural or cultural resources can tip the balance between the populace backing the U.S. mission or backing an insurgency. Despite the degraded environmental conditions and rampant pollution often found in overseas theaters, the locals often care a great deal about the environment. Their concerns are driven by real needs: potable water for their families, sanitation for their villages, and viable farmland on which they can grow food. Unintentional harm to the environment or environmental infrastructures can damage citizens' relations with U.S. forces and even the new government's legitimacy.

**Effects on diplomatic relations.** Environmental mismanagement can cause both short- and long-term problems with host nations in and around regions of conflict. Illegal

dumping by contractors has caused diplomatic issues in several recent operations, as has contamination left by U.S. forces. Because some environmental issues, such as air and water pollution, can extend beyond national borders, relations with neighbor countries and key allies can also suffer.

**Environmental and financial liabilities.** If environmental problems are not properly handled, they tend to worsen over time, causing more environmental harm and becoming progressively more difficult and expensive to address. The ability to recognize and deal with a problem quickly can help keep Army costs low. Lawsuits can drive costs, including claims from the local populace for environmentally related damage or from U.S. soldiers who believe they were exposed to toxic substances. Such suits can be filed long after an operation is over.

In short, environmental considerations can affect the success of long-term stability, reconstruction, and counter-insurgency operations. By taking a careful and strategic approach to the environment during the post-conflict phase of a contingency, Army units and commanders can

- safeguard troops over the long term and ensure operational effectiveness
- lower security risks, improve intelligence, speed reconstruction, help establish stability, and help enable U.S. forces to withdraw sooner
- foster a positive attitude toward the United States and its military forces and help decrease insurgent attacks
- increase the legitimacy of the host-nation government that the United States is supporting
- reduce financial and diplomatic liabilities.

### **Several Factors Characterize the Army's Current Approach to the Environment During Contingencies**

Despite these benefits, the low priority that Army units, commanders, and planners usually give environmental considerations during contingencies can lead to insufficient handling of environmental issues and missed opportunities to make strategic use of them. This tendency stems from three factors:

- Environmental conditions in contingency operations differ markedly from those in the United States.
- Stability and reconstruction operations are considered distinct from military operations.
- Environmental considerations tend to be addressed on an ad hoc basis, without an appreciation for their potential to help achieve strategic objectives.

**Environmental Conditions Differ Markedly in Contingency Operations.** When Army units are in the United States, environmental conditions and infrastructures

are excellent, and the focus of environmental activities is on complying with and even going beyond U.S. environmental laws and regulations. Soldiers are supported by installation staff who manage most day-to-day environmental issues. During a contingency, the situation is very different. There are often few, if any, environmental laws or regulations, and the local environment can be severely degraded. In this context, soldiers and commanders may view environmental issues as irrelevant—or may not even recognize them.

In overseas theaters, basic environmental infrastructures that Army units take for granted in the United States are often underdeveloped, may have been damaged by conflict, or simply do not exist. Sanitation, clean water, and hazardous waste issues can become major concerns for deployed units. Units may confront legacy pollution that rarely occurs in the United States.

**Stability and Reconstruction Operations Are Considered Distinct from Military Operations.** Until recently, the military has considered stability and reconstruction operations to be outside normal military operations. Consequently, commanders and planners have assumed either that U.S. participation in the operation will end quickly after the combat phase or that other U.S. and international organizations will take responsibility for stability and reconstruction. As a result, when planning and conducting a contingency operation, they have often failed to recognize and account for environmental issues related to achieving stability and rebuilding the country.

**Environmental Considerations Tend to Be Addressed on an Ad Hoc Basis.** The lack of attention to stability operations and desired end states has led planners and commanders to take an ad hoc, short-term approach to environmental issues during contingency operations. Operation plans contain limited information about environmental concerns and do not cover use of the environment to achieve desired environmental outcomes or strategic objectives. The absence of guidance has contributed significantly to this shortsightedness. While ample policy and doctrine provide guidelines for sound environmental practices at permanent U.S. and foreign Army installations, there is almost no high-level guidance for the environment in contingency operations.

This holds particularly true for base camps. Although they are a consistent feature of contingency operations and present numerous environmental challenges, the Army has no standard policies for their design, construction, or operation. Instead, it has historically addressed environmental problems with short-term, expedient solutions that often prove inadequate and more expensive than longer-term but better-planned efforts. Its approach to managing the environmental practices of contractors has also been largely ad hoc.

## A Comprehensive Approach to the Environment Will Boost Overall Mission Success, Especially in the Post-Conflict Phase

The Army needs a coherent, comprehensive approach to address environmental issues in contingency operations—one that encompasses policy, culture, planning, training, investment, and sustainable operational practices. By establishing standards and building a body of knowledge and best practices, the Army can provide units, commanders, and planners with a pool of resources they can use to plan for and manage environmental issues to optimize mission outcomes.

### The Building Blocks of a Comprehensive Approach

**Improve policy and guidance.** Good policy is the prerequisite for change and begins with the Department of Defense (DoD). A standard DoD-wide policy will clarify the need for cooperation in addressing environmental issues. The Army can then tailor its doctrine to implement these departmental directives. Policies should establish standard operating procedures, responsibilities for commanders, and clear expectations that can set training standards. Base camps and contractors are issues of special concern. The *Army Strategy for the Environment* could provide an excellent starting point for improving Army policy.

Two recent changes have the potential to motivate improved policy and guidance. First is DoD's 2005 decision to make post-conflict operations (stability, support, transition, and reconstruction) as important as combat operations. Second is the Army's new doctrine for military operations that recognizes the importance of stability operations for achieving the desired goals during a contingency.

**Promote an environmental ethic that extends to contingency operations.** The environmentally responsible behavior demonstrated at permanent installations must be carried over to contingency operations. Commanders and soldiers alike must take part in a cultural change, coming to recognize the many tactical and strategic benefits of good environmental stewardship, both short- and long-term. A

broader definition of environmental issues and a recognition of how important they can be for locals are key.

#### Better incorporate environmental considerations into planning.

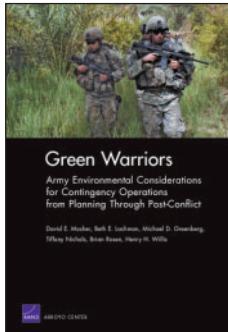
The currently limited scope of environment-related planning must be significantly expanded to include strategic aspects of the environment and specific regional issues. Commanders should receive high-quality information and analysis so they can make informed decisions appropriate to the operation at hand, including how to achieve desired end states. A phased approach that can accommodate unpredictability in the duration of post-conflict operations and the use of risk-assessment techniques should be standard elements of environmental planning.

#### Improve training and awareness.

Commanders, soldiers, and non-combatant personnel should receive environmental training both before deployment and in the field. It is critical to incorporate lessons from field experience. Topics should include the short- and long-term importance of environmental considerations; regional environmental conditions; prominent local concerns; and step-by-step, on-the-ground environmental procedures.

**Increase investment.** Good planning and training can go only so far without adequate investment. Enhanced funds can be used to (a) secure personnel with the right skills to oversee and follow through with environmental issues and (b) support research and development to create innovative technologies that can reduce and manage the environmental effects of Army operations and reduce logistics requirements and costs.

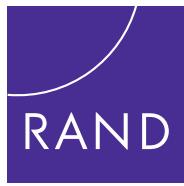
**Emphasize sustainability.** Sustainability should serve as the Army's model for managing environmental considerations during contingency operations, particularly during the post-conflict phase. Using this concept as a guiding principle, Army units and commanders can make better decisions about environmental issues. Sound environmental practices can help sustain efficient troops, safe base camps, good relations with the local populace, basing rights in host countries, and, most important, a sustainable country after U.S. forces leave. ■



This research brief describes work done for the RAND Arroyo Center documented in *Green Warriors: Army Environmental Considerations for Contingency Operations from Planning Through Post-Conflict*, by David E. Mosher, Beth E. Lachman, Michael D. Greenberg, Tiffany Nichols, Brian Rosen, and Henry H. Willis, MG-632-A (available at <http://www.rand.org/pubs/monographs/MG632/>), 2008, 252 pp., \$32.50, ISBN: 978-0-8330-4318-4. The RAND Corporation is a nonprofit research organization providing objective analysis and effective solutions that address the challenges facing the public and private sectors around the world. RAND's publications do not necessarily reflect the opinions of its research clients and sponsors. RAND® is a registered trademark.

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